State Agency Energy Management Bulletin and FASER Users at Virginia State Agencies

Information for Agency Energy Managers and FASER Users at

Governor Issues Executive Order Implementing Virginia Energy Plan

Novernor Gilmore has issued Executive Order **J** Fifty-Six (99) calling for the implementation of the Virginia Energy Plan (VEP). The VEP employs a comprehensive approach to energy management which is critical to reducing energy cost and consumption in state operations and to advancing energy efficiency and economic competitiveness in Virginia.

Building on the successes that have been achieved to date, Executive Order Fifty-Six (99) tasks state agencies with continuing and enhancing their energy management activities. By implementing the VEP, agencies are helping operate state government as a model of energy efficiency, reducing pollution and preserving natural resources.

Improving energy conservation and efficiency in state government operations through careful planning and directed efforts can greatly improve the bottom line of state government. Recognizing that the greatest impact on state energy consumption is achieved through energy efficiency improvements in facility management, the VEP concentrates on those agencies that operate state facilities. However, many improvements in energy efficiency exist for energy savings through modifications in employee behavior and administrative operations, such as carpooling and procurement. Therefore, the participation of all agencies is important.

The 99-00 Virginia Energy Plan will be distributed to each agency in November along with the annual VEP Report which is compiled from individual agency energy management reports. For more information, contact Kendra Shifflett at (804) 692-3230 or email kbs@mme.state.va.us. ❖

FASER 2000 Release 5.1

Enron Energy Information Services (EEIS), formerly OmniComp, has successfully converted all eightyone agency FASER 9 data sets to FASER 2000 and is now merging the data sets for use in the Enterprise FASER module (described below). Barring any unforeseen problems in the merge, EEIS plans to ship FASER release 5.1 and all agency data sets to DMME by late October. We will forward to each registered FASER user an agency-specific CD containing FAS-ER 2000 release 5.1 and your agency's data as soon as we receive it from EEIS. We will enclose instructions provided by EEIS for installing the software upgrade and converted data set.

Frank Scribner and Gary Verno are available to assist you in installing and running the FASER software. Our purchase agreement with EEIS provides for unlimited FASER software technical support for fourteen months. Please take advantage of this service. The FASER help desk is (800) 726-4181, e-mail: HelpCenter@faser.com.

DMME is very interested in learning how agencies are using FASER. In the past, most agencies have used FASER primarily to prepare monthly energy consumption and cost reports. FASER also can be used to set budgets, predict energy usage as a function of weather, perform production tracking, check bills for reasonableness, and also serve as an electronic interface to an agency's accounts payable system.

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Did You Know...

October is National Energy **Awareness Month**

The Department of Energy has a Clean *Energy for the 21st Century* web site where you can find information on clean energy technologies and Energy Awareness Month activities. You also can request copies of Clean Energy publications, find information about Clean Energy supporting events and activities, and find links to other "clean energy" related sites.

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A powerful FASER feature is its ability to calculate and report cost avoidance. Cost avoidance represents the dollars saved (or lost) due to energy management actions. For example, if you used 1,000 gallons of fuel last year but used only 900 gallons this year due to conservation efforts, you avoided using 100 gallons. At a current cost of \$1.30 a gallon, you avoided spending \$130. Cost avoidance is important information that DMME has noticed is not being utilized by most agencies.

DMME staff are prepared to provide training and technical support on FASER 5.1. FASER is a very good energy accounting tool, and we would be very glad to assist you in using FASER to address specific needs.

Enterprise

DMME has purchased a FASER module called Enterprise which will enable agencies to share data within and among agencies and allow DMME to more easily replicate and analyze each agency's data. We plan to begin a thirty-day pilot test of Enterprise starting October 11th. DMME wishes to thank James Madison University, Virginia Department of Transportation, and Old Dominion University for agreeing to participate in the pilot test. When the pilot test has been completed, EEIS will configure Enterprise for use by all other agencies.

The pilot test will ensure that the Enterprise program will:

- Allow all agencies, offices, and remote locations to update utility information in the central FASER database via network, e-mail, or dial-up connection;
- Allow two-way communication via network, e-mail, or dial-up connection to seamlessly replicate FASER data up and down the Virginia agency hierarchy, providing all agencies with the most up-to-date energy information; and
- Allow agencies to benchmark energy trends within their own agency and replicate all information to DMME.

Electric Submetering

The DMME has developed a Request for Proposals for consulting services to create a strategy for installation of customer-owned electric submeters to measure, record, and analyze electric demand and usage load profile data (kW and kWh) at state-owned facilities. In preparation for electric utility restructuring DMME will begin submetering electricity at state facilities for a better understanding of when and how much electricity is used.

DMME and the Consultant will distribute a questionnaire to ascertain what energy management control systems (EMCS) and electric submetering programs are in place at state facilities. Our plan is to have the energy questionnaire completed by each agency energy manager.

For assistance with FASER or Enterprise (when released by EEIS) please contact Frank Scribner at (804) 692-3234 or e-mail ffs@mme.state.va.us. For program information on agency energy monitoring using FASER, the EPA *Energy Star* program, energy measurement and verification protocols, or submetering, please contact Gary Verno at (804) 692-3226 or e-mail gav@mme.state.va.us. \\$

Technical Assistance Revolving Loan Funding Available Soon

The Department of Mines, Minerals, and Energy is winding up its Technical Assistance Grant Program. These grants supported agencies in securing the professional and technical support services necessary to design comprehensive energy efficiency projects for their facilities. Agencies used the recommendations and designs to support applications for construction financing under the State's energy lease financing program or other vendor third-party financing arrangements. The success of this grant program spurred the recent development of a follow-up program, the Technical Assistance Revolving Loan Program.

The Technical Assistance Revolving Loan Program has been established to reduce the up-front costs of energy efficiency projects and to enable agencies to identify and implement effective energy management programs in their facilities. Phase-1 of the program will award over \$300,000 to state institutions to develop energy project technical analyses and feasibility studies. Phase-2 of the program will provide \$100,000 in funding to agencies to pay for the engineering and design services necessary to implement the upgrades recommended in the initial technical

analyses or feasibility studies developed using Phase-1 funding (and other sources.)

Technical analysis studies evaluate all of the building's energy using systems and identify a wide range of cost-effective energy efficiency retrofit opportunities. Feasibility studies focus on specific energy improvements, such as lighting upgrades, energy management controls or boiler replacements. Both types of evaluations include project narratives, recommendations, detailed cost estimates, annual energy and dollar savings projections, and simple payback or life cycle cost analyses.

Engineering and design services are provided by a professional engineer and typically include development of detailed plans, equipment and performance specifications, and contractual requirements to successfully implement the energy reduction projects. Services paid for using Phase-2 grants also can include project management activities such as pre-bid conferences, final inspections and punch list completion, and contractor payment approvals.

Revolving Loans for up to a maximum of \$50,000 per agency per phase will be awarded only for projects intended for implementation. Loans will be available on a first-come, first-served basis starting in early 2000. For more information or to apply, please contact C. Robin Jones at (804) 692-3224 or e-mail cri@mme.state.va.us.

Assessing Purchasing Specifications and Buying Recycled and "Green" Products

State agencies' responsibilities to use recycled products are noted in several sections of the Code of Virginia. In general, state agencies have the duty to establish programs for the use of recycled materials (Code of Virginia Section 10.1-1425.6) and shall implement a purchase program for recycled goods (Code of Virginia Section 11-47.01). Additionally, under the Code and the Virginia Public Procurement Act, the Department of General Services and all state agencies shall review and revise their procurement procedures and specifications to encourage the use of goods and products with recycled content (Code of Virginia Section 11-41.01).

DGS is interested in studying issues related to purchasing specifications and the use of recycled materials and invites your feedback. Using a "focus-group" format, two Procurement Work Groups are forming to study this issue and interested parties are invited to participate. Work group members will consist of procurement professionals and end-users from agencies. Both work groups will examine specifications for all "environmentally friendly" purchases, which includes not only recycled content materials, but nontoxic alternative products and energy efficient materials. One group will focus on building and construction materials and the other group will examine office products and miscellaneous materials. The groups will meet quarterly for a period of one year. Please contact Georgiana Ball, State Recycling Coordinator with DGS, at (804) 236-2781 or e-mail gball@dgs.state.va.us with your comments or for more information.

UVA Adopts Energy Efficient Motor Policy

The annual operating cost for an electric motor is often much greater than its initial cost. Substantial reductions in energy and operational costs can be achieved through the use of energy efficient electric motors.

The University of Virginia realized this and has implemented a comprehensive motor replacement policy designed to reduce energy costs, as well as maintenance and downtime. The policy requires that all new motors meet or exceed the NEMA, MG1-1993 nominal full load efficiency standards.

For more information on UVA's Electric Motor Replacement Policy, contact Tony Motto at (804) 982-5893 or e-mail awm3g@virginia.edu.

Did You Know...

Standard commercial fluorescent lighting uses 1940s technology which wastes up to 40 percent of the electricity consumed. Newer technologies can minimize this waste while improving the quality of light. Combining these technologies with automatic lighting controls can yield savings of more than 50 percent.

Geothermal Heat Pumps: Energy Under Foot

The temperature of the Earth's crust is extremely stable just a few feet below the surface. Even frigid winter cold spells and extended summer heat waves have little effect on the temperature of the ground 3 or 4 feet down. This temperature stability is the principle behind geothermal heat pump technology—a technology that is gaining widespread acceptance as an economical, environmentally responsible way to heat and cool residential and commercial buildings.

Geothermal heat pumps are similar to conventional air conditioners and refrigerators. Air conditioners and refrigerators discharge waste heat to the air. Geothermal heat pumps discharge waste heat to the ground during cooling season and extract useful heat from the ground during heating season.

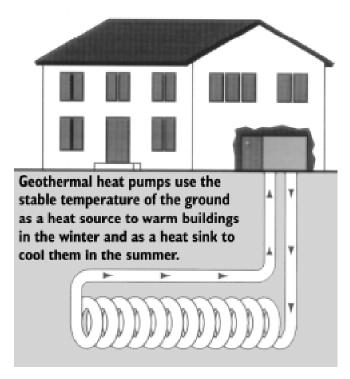
All geothermal heat pump systems, whether large or small, have three fundamental components: (1) a buried piping loop that transfers heat to and from the Earth by means of a circulating water solution; (2) a heat exchanger that transfers thermal energy between the circulating fluid and the air being heated or cooled; and (3) a distribution system—similar to conventional ductwork—that delivers the conditioned air to the building.

Although the geothermal heat pump and its components operate on electricity, the amount of energy they consume is small in comparison to the amount of energy the system delivers. A typical geothermal heat pump system is about 300%—400% efficient; for every unit of energy consumed by the pump, four units of energy are delivered to the building in the form of heat or air conditioning.

Those who use geothermal heat pumps reap economic and environmental benefits. In most applications, the technology cuts winter heating costs by about 50% and summer cooling costs by about 25%; payback

Did You Know...

Heat contained within the Earth that can be recovered and put to useful work is called geothermal energy. Throughout the country, the stable temperature of the ground just below the surface can be used by geothermal heat pumps to both heat and cool buildings.



periods typically range from 2 to 8 years. Because it relies on a naturally occurring source of energy rather than energy derived from the burning of fossil fuels, the technology has minimal impact on the environment and reduces air emissions that can lead to climate change. In fact, a recent Environmental Protection Agency report found that under most electricity generating scenarios, the geothermal heat pump had the lowest CO₂ emissions of all technologies analyzed, and the lowest overall environmental cost. Because of their high efficiency, geothermal heat pumps reduce energy consumption.

These benefits are available to residential and commercial building owners throughout the United States, regardless of geographic location. More than 250,000 geothermal heat pump systems are currently operating in homes, schools, and commercial facilities, and surveys show that 95% of heat pump owners are completely satisfied with their systems. Because of work being done jointly between industry and DOE, analysts believe the technology will be used in ever increasing numbers during the next decade.

For more information on geothermal heating and cooling, contact the Department of Energy's Office of Geothermal Technologies at (202) 586-5340, or visit their web site at http://www.eren.doe.gov/geothermal.

DGS Signs Contract for Lamp and Ballast Disposal/Recycling Services

The Department of General Services (DGS) recently secured the services of Safety-Kleen Inc. for disposal or recycling of mercury containing fluorescent and high intensity discharge (HID) lamps and PCB (polychlorinated biphenyl) and DEHP (Di (2-ethylhexyl)phthalate) contaminated ballasts. The lamps and ballasts will be accumulated during lighting upgrades and routine maintenance in the Capital Complex buildings in Richmond. Safety-Kleen will pick up lamps and ballasts from five central locations in the capital complex area and transport them to an appropriate disposal or recycling facility.

For more information on this contract or to use the DGS Invitation for Bids as a blueprint to develop a similar solicitation for your agency contact Fred Delboy at the DGS at (804) 786-6152.

Study Suggests Potential Multi-billion-dol- lar Savings for Nation's Campuses

Colleges and universities across America are sending a powerful message that what's good for the environment also is good for the bottom-line.

A new report, Green Investment, Green Return: How Practical Conservation Projects Save Millions on America's Campuses, released by the National Wildlife Federation (NWF) reveals that big savings are being achieved through environmental initiatives on campuses nationwide, even as college administrators are facing tough economic constraints.

Green Investment, Green Return, sponsored by NWF's Campus Ecology program, highlights 23 cost-saving conservation initiatives at 15 public and private post-secondary institutions across the United States. Savings per project ranged from little more than \$1,000 to a staggering \$9 million, the study found. And the total savings across the 23 projects were \$16.8 million, which represents an average of \$728,500 per campus.

The 23 projects – which address issues of transportation, energy and water conservation, materials reuse and redistribution, composting, recycling and management of hazardous chemicals – are merely a

sampling of a much broader universe of campus conservation initiatives underway nationwide, each delivering big environmental benefits along with their financial returns.

Examples in the study include:

The State University of New York-Buffalo saved over \$9 million with a variety of creative energy-saving strategies, and in the process prevented 63.4 million pounds of emissions of carbon dioxide, 140,000 pounds of sulfur dioxide and 214,000 pounds of nitrous oxide. **Cornell University** saved over \$3 million by "getting students out of the car," and wound up saving 417,000 gallons of gas and preventing the emissions of 6.7 million pounds of carbon dioxide. Brevard Community College saved more than \$2 million and, dubbed "the energy miracle" by the local utility company Florida Power & Light, the campus saved 257 million kilowatt hours of electricity. By installing new toilets and water fixtures, Columbia University saved \$235,000 in addition to 80,000 cubic feet of water. The University of Colorado recycled 9,880 tons of paper and other materials. The University of Washington reduced 1,000 pounds of hazardous waste.

As microcosms of society, the nation's college campuses have incredible potential for making positive impacts on the environment and the economy. By instituting even simple, common-sense conservation practices – like recycling, using native plants when landscaping, running atmospherically safe transportation systems, creating fertilizer from kitchen food waste, selling surplus property and maintaining university vehicles with re-refined motor oil – colleges and universities are making major strides toward improving the Earth and their financial conditions.

"We were very surprised at what we were able to achieve, economically and environmentally," said Walter Simpson, Energy Officer at the State University of New York - Buffalo. "It was exciting to see that there is a real eagerness among administrators, faculty, students and staff to make a positive difference on campus and in the larger community."

In addition, campus conservation efforts yield extraordinary educational dividends, said Julian Keniry, NWF's Manager of Campus Outreach, who coauthored the report with David J. Eagan, Ph.D., of the University of Wisconsin. "Many of our future leaders are on these

campuses," she said. "They will be the ones who make decisions that affect the whole planet. What better place to learn how to be financially and environmentally responsible than in college?"

Green Investment, Green Return was cosponsored by 16 other organizations that work with NWF to promote environmental awareness, education, and stewardship in institutions of higher learning.

National Wildlife Federation's Campus Ecology Program was established in 1989 to work with the college campus community (students, faculty, administrators, and managers) to promote ecological stewardship on campuses and in their surrounding communities. Since 1989, Campus Ecology has worked with more than a third of the nation's colleges and universities.

For more information or to purchase the report, Green Investment, Green Return, contact the NWF Northeast/Mid-Atlantic Field office at (802) 229-0650 or e-mail nemid@nwf.org.

Electric Utility Contract Amended

The Commonwealth of Virginia and Virginia Power have negotiated modifications to the contract for electricity purchased by state agencies. The contract amendment includes a 5.4% reduction in base rates that went into effect on March 1 of this year.

In addition to the reduced rates for state agency customers, Virginia Power and the Commonwealth may mutually agree to develop a retail access pilot program similar to Virginia Power's retail access pilot program. The Commonwealth may also implement experimental rate designs, incentives, or pilot programs independent of any action by the State Corporation Commission - so long as these actions do not increase the cost to the Commonwealth.

For more information contact Kendra Shifflett at (804) 692-3230 or e-mail kbs@mme.state.va.us. �

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Agency Energy Managers:

Please file this Bulletin in Section 10 of your Agency Energy Management Resource Guide